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FACT SHEET

HAMILTON HARBOUR

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Remedial Action Plan
Plan d'Assainissement

Canada Ontario

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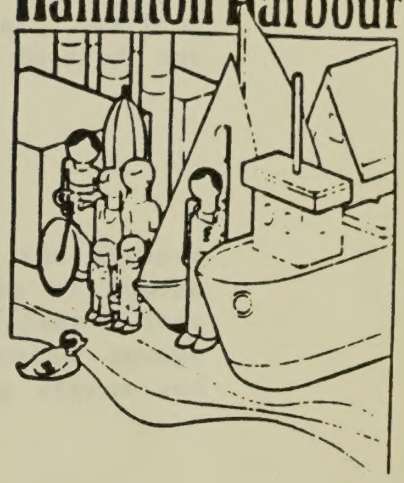
MAY 18 1988
GOVERNMENT DOCUMENTS

DIALOGUE ON Hamilton Harbour



Fact Sheet

Hamilton Harbour

WHO USES IT?

Shipping and Navigation

Ships come to the Harbour transporting over 13 million tonnes annually of raw materials and finished goods. It is the principal port serving south western Ontario and the Niagara Peninsula.

Waterfront Land

Canada's two largest steel manufacturers occupy the industrial waterfront. Dozens of other businesses occupy landfilled property leased by the Hamilton Harbour Commission.

In total, 46% of the Harbour waterfront is industrial, with 36% designated for transportation, institutional and uncommitted uses. Private residences occupy 11% of the shoreline.

Recreation

There are: 4 private yacht/boating clubs; 1 golf club (private); 4 park areas; playground; Harbour tours; 4 marinas/boat launching facilities; 1 sailing school and boat rental.

Swimming

Swimming is prohibited in the Harbour as a result of a by-law passed by the Hamilton Harbour Commission in 1930, at the request of Hamilton's Chief Medical Officer of Health. Bacteria in Harbour water do not yet meet standards.

Drinking water

Harbour water can be treated to drinkable standards. However, Hamilton and Burlington's intake pipes for their drinking water are located out in Lake Ontario -- not in the Harbour.

Municipal Sewage

Sewage effluent and storm water overflows are deposited into the Harbour by the Cities of Hamilton and Burlington and the communities of Dundas and Waterdown. Stoney Creek utilizes the Hamilton treatment plant. This amounts to approximately 400 million litres per day of treated sewage and 90 million litres per day of storm sewer overflows during storms and heavy snow melt. All of this enters directly into the Harbour.

Industrial Usage

Approximately 2300 million litres of water per day are taken from the Harbour by the two steel companies for cooling and process purposes, treated and returned to the Harbour as effluent. The two steel companies are the only users of Harbour water for industrial purposes.

Land Use Activities

Activities inland have an impact on Hamilton Harbour's Water quality. There are several creeks draining into the Harbour: Spencer, Grindstone, Falcon, Hendrie, Sulphur, Ancaster and Redhill. Construction and farming activities create runoff, which flows through the Creeks into the Harbour. Streams are used as a drainage outlet, for irrigation and for watering livestock. Strip mining and quarrying contribute loadings. Over 50% of the suspended solid loadings to the Harbour come through the creeks draining the watershed.

HAMILTON HARBOUR FISHERY

History:

Commercial fishing in the Hamilton area began in the 1820s using seines off Hamilton Beach. Seines were widely used until the 1860s when they were gradually replaced by gill nets during the 1870s and 1880s.

By 1879, the catches were so large they were in danger of glutting the market and had to be restricted.

By the late 1940s carp was virtually the only species caught by the commercial fishery in the Harbour and Cootes Paradise. Numbers of this coarse fish have increased dramatically because of nutrient enrichment and higher water levels in Cootes Paradise.

The last remaining commercial fishermen stopped fishing after the 1977 season.

Species:

Herring and whitefish were abundant in the Harbour during the 1880s with millions migrating into the Harbour from western Lake Ontario to spawn. But, herring declined due to overfishing and the deteriorating water quality in the Harbour after the turn of the century. By the 1940s they were very low in number. Lake trout became non-existant in the Harbour by the mid 1930s.

Species such as rainbow smelt, northern pike, bass and yellow perch once thrived in the Harbour but have declined due to such factors as water quality and winter spearing.

Sport Fishing:

Sport fishing was a popular activity in Hamilton Harbour during the 1880s with fishermen angling and trolling for pike and bass from piers and boats. Spear fishing continued into the 1920s, with fishermen averaging between 125 and 150 pounds of fish per month during the winter.

Currently, there are isolated sport fisheries in the Harbour with the spring smelt run being the major sport fishing. Recent sampling by the Federal Department of Fisheries and Oceans identified 59 species in the Harbour, the majority of which were warm water species.

Fish Consumption Guidelines

Presently all but the largest size classes of white perch, brown bullhead and carp sampled are free from consumption advisories. Some species have been found with non-malignant tumors and lesions. Present research shows that the tumors do not kill or impair the fish.

WATER QUALITY: Provincial Standards

Goals: Surface Water

The Ministry has established the following goals for surface water:

Quality: "To ensure that the surface waters of the Province are of a quality which is satisfactory for aquatic life and recreation".

Water meeting these criteria will also be suitable for drinking and agricultural uses.

Quantity: "To ensure a fair sharing of the available supply of water to protect both withdrawal and in-place uses of water".

The withdrawal of water from and discharge of water to surface water bodies will be controlled to assist in maintaining or restoring water quality for the protection of aquatic life and recreation.

Municipal-Industrial Strategy for Abatement (MISA)

The Ontario Ministry of the Environment with the assistance of the Federal Department of the Environment is in the process of developing the Municipal-Industrial strategy for Abatement as the new, primary initiative for protecting Ontario's water quality.

MISA's regulations will impose firm, specific requirements on all industrial and municipal discharges, based on best available treatment technology, that is economically available. These will include the iron/steel industries on Hamilton Harbour and our sewage treatment plants.

More stringent requirements will be imposed where the receiving water conditions so dictate.

WATER QUALITY: Hamilton Harbour

The Great Lakes Water Quality Agreement (1978) sets minimum objectives for water quality in the Great Lakes, with the goal that the Lakes and associated bodies of water, such as Hamilton Harbour, are brought up to the objectives, whereby the water is drinkable, swimmable, and supportive of aquatic life.

In 1985, the International Joint Commission identified Hamilton Harbour as one of the 17 Canadian locations designated as "areas of concern", defined as areas where "environmental quality is degraded and beneficial uses of the water or biota (flora and fauna) are adversely affected".

Dramatic improvements to the quality of effluents entering the Harbour from sewage treatment plants and industrial sources have been achieved since the mid-1960s, at a cost in excess of $250 million. At present, effluent concentrations of the majority of contaminants, from both municipal and industrial sources, meet Province-wide objectives. Concentrations of some contaminants which presently are of concern, or exceed the guidelines, will require advance treatment technology.

The level of contamination of the Harbour bottom sediments is a significant factor contributing to the Harbour's present state. Approximately 80% of the loadings of suspended solids into the Harbour are retained in the Harbour. There is little evidence for the release of trace metals from the sediments, whereas in the case of PCBs, more is exported to Lake Ontario

than settles on the bottom of the Harbour. Inputs from municipal and industrial sources provide an environmental stress that cannot be assimilated by the Harbour's ecosystem. Reducing the present loadings will be more costly than has been experienced in the past.

Available water management options include: allowing for further water quality deterioration; providing for the maintenance of existing quality; or actions to improve water quality. If MOE guidelines, objectives and goals are to be met new abatement initiatives, with accompanying large capital expenditures, will be necessary.

Harbour Data

Surface Area: 2,160 hectares (1985).
Mean Depth: 13 m.
Maximum depth: 25 m.
Watershed Area: 500 sq. km.
Shoreline Length: 45 km.
Reduction in surface area from 1926 to 1982: 22%.
Population of Hamilton, Burlington, Dundas, Ancaster and Flamborough totals about 500,000 people.
People employed in "Bayfront Industries" - 50,000.

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